

CLAIMS

What is claimed is:

1. An isolated polynucleotide comprising:
 - (a) a nucleotide sequence encoding a polypeptide having sugar transport protein activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 80% sequence identity, or
 - (b) the complement of the nucleotide sequence of (a).
- 5 2. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 85% identity.
- 10 3. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 90% identity.
- 15 4. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 95% identity.
- 20 5. The polynucleotide of Claim 1, wherein the amino acid sequence of the polypeptide comprises the amino acid sequence of SEQ ID NO:32 or 36 .
6. The polynucleotide of Claim 1 wherein the nucleotide sequence comprises the nucleotide sequence of SEQ ID NO:31 or 35.
- 25 7. A vector comprising the polynucleotide of Claim 1.
8. A recombinant DNA construct comprising the polynucleotide of Claim 1 operably linked to at least one regulatory sequence.
9. A method for transforming a cell, comprising transforming a cell with the polynucleotide of Claim 1.
10. A cell comprising the recombinant DNA construct of Claim 8.
11. A method for producing a plant comprising transforming a plant cell with the polynucleotide of Claim 1 and regenerating a plant from the transformed plant cell.
- 30 12. A plant comprising the recombinant DNA construct of Claim 8.
13. A seed comprising the recombinant DNA construct of Claim 8.
14. An isolated polypeptide having sugar transport protein activity, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 80% identity.
- 35

15. The polypeptide of Claim 14, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 85% identity.

5 16. The polypeptide of Claim 14, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 90% identity.

17. The polypeptide of Claim 14, wherein the amino acid sequence of the polypeptide and the amino acid sequence of SEQ ID NO:32 or 36 have at least 95% identity.

10 18. The polypeptide of Claim 14, wherein the amino acid sequence of the polypeptide comprises the amino acid sequence of SEQ ID NO:32 or 36 .

19. A method for isolating a polypeptide encoded by the polynucleotide of Claim 1 comprising isolating the polypeptide from the cell of Claim 8.